

***Calicnemis latreillei* LAPORTE, 1832** (Coleoptera, Scarabaeidae, Dynastinae),
a new host for the Tachinid fly *Microphthalma europaea* EGGER, 1860
 (Diptera, Tachinidae)
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Abstract. The Tachinidae fly *Microphthalma europaea* EGGER, 1860 was reared from larvae of the Dynastinae beetle *Calicnemis latreillei* LAPORTE, 1832 found in natural conditions in Corsica Island, southern France. The latter species thus constitutes the first record for this host/parasitoid couple for *M. europaea*, which is therefore able to exploit the two known species currently composing the genus *Calicnemis* LAPORTE, 1832.

Résumé. Le diptère Tachinidae *Microphthalma europaea* EGGER, 1860 a été élevé à partir de larves du coléoptère Dynastinae *Calicnemis latreillei* LAPORTE, 1832 trouvées dans des conditions naturelles en Corse, dans le sud de la France. Cette dernière espèce constitue donc le premier signalement de ce couple hôte/parasitoïde pour *M. europaea*, qui est donc capable d'exploiter les deux espèces connues composant actuellement le genre *Calicnemis* LAPORTE, 1832.

Keywords. Beetles, parasitism, Corsica, France.

Introduction

The Dynastinae genus *Calicnemis* LAPORTE, 1832 was for the first time the subject of a recent major revision by VERDUGO & DRUMONT (2015). Following this study of more than 400 specimens, it emerged that the genus *Calicnemis* is composed of two species, *C. latreillei* LAPORTE, 1832 and *C. obesa* (ERICHSON, 1841), the latter being composed of two subspecies, the nominotypic subspecies and *C. obesa sardiniensis* LEO, 1985. They inhabit the French, Spanish and Portuguese Atlantic coasts, as well as around the Mediterranean sea from North Africa to Sicily (VERDUGO & DRUMONT, 2015).

The species *Calicnemis obesa* was recently reported by VERDUGO (2010) as a host for the parasitic Tachinidae diptera *Microphthalma europaea* EGGER, 1860. This was the first time that the genus *Calicnemis* has been cited as a host for this fly, which is known to develop, under natural or laboratory conditions, at the expense of several genera of Coleoptera Scarabaeoidea such as: *Amphimallon* BERTHOLD, 1827, *Anisoplia* SCHOENHERR, 1817, *Anoxia* LAPORTE, 1833, *Cetonia* FABRICIUS, 1775, *Geotrogus* GUÉRIN-MÉNEVILLE, 1842,

Melolontha FABRICIUS, 1775, *Oryctes* ILLIGER, 1798, *Oxythyrea* MULSANT, 1842, *Pentodon* HOPE, 1837, *Phyllognathus* ESCHSCHOLTZ, 1830, *Phyllopertha* STEPHENS, 1830, *Polyphylla* HARRIS, 1842, *Protaetia* COSTA, 1852 and of course *Calicnemis* (VERDUGO, 2010; TSCHORSNIG, 2017).

Context of the study and discussion

For several years, *Calicnemis* larvae have been present on the beach at Cateraggio (mouth of the Tavignano river) in northern Corsica. They belong to the species *Calicnemis latreillei* LAPORTE (Fig. 1), the only species of the genus present on the island on the eastern coast from Aleria and all the way up the dune ridge (VERDUGO & DRUMONT, 2015; E. JIROUX, comm. pers.).

Initially, one of the authors (M. D.) looked for larvae of the species in the so-called "living dune" as already indicated by CAILLOL since 1913. To his great surprise, the larvae were always to be found, on this site, under wet driftwood in the middle of the beach of Cateraggio (Fig. 2), an area that is submerged by the sea during storms. He observed them on several occasions,

by example in early January and early April, always on the same stretch of beach some fifty meters long and 15-20 meters wide. Given their size (2 to 3 cm long), these larvae must be in their last year of development before



Fig. 1. Adults of *Calicnemis latreillei* LAPORTE (France, Corsica, plage d'Aléria, III-IV/1998, leg. FIÉVET in coll A. DRUMONT). A & B. Habitus, dorsal view: A. male, B. female. C & D. Habitus, frontal view: C. male, D. female, photos and arrangement of the plate: N. MAL.



Fig. 2. View of Cateraggio beach, Corsica, France, 30 March 2024, photo : M. DELWAIDE.

pupation. If disturbed, the larvae sink into the sand within minutes and are impossible to find back. Recently, a larva was found under one of these driftwoods (30 March 2024), and had built itself a lodge within it (Fig. 3).

The area in question on Cateraggio beach is very popular with tourists from May to September. When we dug into the sand, we found a lot of organic waste (pieces of wood, vegetation). *Calicnemis* larvae can therefore develop there undisturbed by the trampling of the beach by tourists. Unfortunately, the commune of Aléria carries out a beach clean-up operation at the end of each winter, using heavy mechanized equipment to remove most of the wood that has washed up on the beach, which can be detrimental to the *Calicnemis* populations present on the site.

Last year, for the first time, there were dozens of *Calicnemis* larvae under pieces of wood scattered in the middle of this part of the beach. M. D. therefore collected a few of them in order to attempt their rearing (with sand and pieces of wood taken on site) to certify the specific identity of the *Calicnemis* larvae present in this area. These larvae were reared in Belgium in January 2023 by two of the authors (M. D. and G. M.).



Fig. 3. Lodge of *Calicnemis latreillei* larvae in driftwood (Cateraggio beach, Corsica, France, 30 March 2024, photo : M. DELWAIDE.



Fig. 4. Male of *Microphthalma europaea* EGGER (France, Corsica, Cateraggio, in coll RBINS), photo: J. LALANNE.

Of the 13 specimens collected, none of the larvae reached the adult stage, but gave birth in March 2023 to numerous specimens of a fly belonging to the Tachinidae family. Two of these Diptera were submitted for determination by the last author (H.-P. T), who identified them as males belonging to the species *Microphthalma europaea* EGGER, 1860.

Microphthalma europaea is therefore able to develop, under natural conditions (it is important to note this), at the expense of the beetle *Calicnemis latreillei*. The latter species thus constitutes the first host record for *M. europaea*, which exploits the two known species composing the genus *Calicnemis*.

Two male specimens of *Microphthalma europaea* that parasitized *Calicnemis latreillei* larvae from Corsica (and identified by H.-P. TSCHORSNIG) have been deposited in the Royal Belgian Institute of Natural Sciences (RBINS) collections by G. MIESSEN and M. DELWAIDE under I.G. number 34.798. They bear the following labels: France- Cateraggio, Corse du Nord, parasite larve de *Calicnemis latreillei* [sic] / pupa: 18/II/2023, ex pupa: 20/III/2023, leg.: M. DELWAIDE, collection: G. MIESSEN / Coll. IRSNB, Don G. MIESSEN, I.G.: 34.798. A photo of one of the two specimens is shown in Fig. 4.

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